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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,863

05/25/2005

Karl-Heinz Dulle

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EXAMINER

BELL, BRUCE F

ART UNIT

PAPER NUMBER

1745

MAIL DATE

DELIVERY MODE

07/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,863

Applicant(s)

DULLE ET AL.

Examiner

Bruce F. Bell

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 10-15 and 20 is/are rejected.
- 7) ☒ Claim(s) 16-19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/19/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading.

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Applicant is requested to place the section headings shown above before each section of their instant specification.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Iacopetti et al (6214181).

Iacopetti et al disclose a new design of elements for an ion exchange membrane electrolyzer for production of chlorine, hydrogen and caustic soda. See abstract. The electrolyzer is made of two sides, an anode side and a cathode side with the cathode side being not as planar as that of the anode side. The cathode side is protruding, due to bulges, with respect to the plane defined by the planar areas of a truncated conical projection. When the anode and cathode elements are pressed together, with the membrane and the gaskets between each couple of the anode and cathode elements for form an electrolyzer, the bulges are compressed against the membrane and an anode mesh or screen and are deformed due to their elasticity. See col. 5, lines 32-36 and 54-57 and col. 6, lines 2-10. Figure 3 shows the detail of the lower part of an element 1. A distributor is housed in a lower part of the element along the internal edge of a flange. The electrolyte and produced gas mixture is forced to flow to the upper part of the elements by an inclined baffle which provides for collapsing gas bubbles. The arrows of the figure indicate that a fresh electrolyte is efficiently mixed with a liquid coming from a downcomer and the arrows show how the mixture of electrolyte and large gas bubbles overflows through the space comprised between an upper edge of a baffle and a lower edge of a flange in a channel behind the baffle itself, wherein the liquid and gaseous phases are quickly disengaged. With this type of recirculation, the electrolyte, although containing gas, reaches the flange edge and thus the membrane is substantially kept in contact with the liquid, avoiding the stagnation of gas pockets,

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which would embrittle the membrane and cause its rupture with time. The electrolyte which is collected in the channel formed by the baffle and the element wall, is nearly completely sent to the downcomer formed by a depression obtained in the sheet during pressing of the projections. The depressions are covered by elongated tiles in order to form the downcomer. The baffle is provided with holes which coincide with the upper section of the downcomer. This also efficient internal recirculation between the flow of electrolyte-gas mixture uprising in the space between the electrode and the pressed element and the downcoming flow of electrolyte containing no gas in the downcomers. See col. 4, line 38 – col. 5, line 4.

The prior art of Iacopetti et al anticipates the applicants instant invention as shown by way of the disclosure above with respect to the instant claims as presented. Even though the prior art of Iacopetti et al does not specifically set forth half shells, it is clear from the Iacopetti et al specification that the elements being connected together are half shells. Further, Iacopetti et al shows that there is spaces provided for flow of electrolyte-gas where the gas bubbles are separated from the electrolyte to ensure that the membrane stays wetted so that the membrane does not become embrittled and that this electrolyte travels to the top of the membrane before being circulated into the downcomer. Therefore, the prior art of Iacopetti et al sets forth the invention as instantly claimed which performs the same function for keeping the membrane wetted. Further Figure 4 shows the horizontal, variable gaps, interspaces, included areas of sheets, baffle, flanges, etc. that applicants are instant setting forth in their instant claims.

Therefore, the prior art of Iacopetti et al anticipates the applicants instant claims as set forth above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iacopetti et al (6214181) in combination with Borucinski et al (6503377).

Iacopetti et al is as disclosed above in the 35 USC 102 rejection above.

Iacopetti et al does not disclose stacking of cells side by side.

Borucinski et al discloses an electrolysis apparatus for producing halogen gases where a number of plate like electrolysis cells are arranged beside one another in a stack and are in electrical contact and which each shell has a housing comprising two half shells of electrically conductive material having two essentially flat electrodes (anode and cathode) where the anode and cathode are provided with apertures like venetian blinds for the electrolysis starting materials and the electrolysis products to flow through, being separated from one another by a dividing wall and arranged parallel to one another and being electrically conductively connected to the respective rear wall of the housing.

The subject matter as a whole would have been obvious at the time the instant invention was made because even though the prior art of Iacopetti et al does not

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disclose multiple cells in a side by side arrangement, the prior art of Borucinski et al shows that this concept is known for use in such cells to increase the production of gas, so one having ordinary skill in the art would have the ability to interconnect the cells of Iacopetti et al for the purpose of increased gas production, since the cells are of similar construction.

Allowable Subject Matter

5. Claims 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest the specific features set forth in the dependent claims for use in the second interspace and further does not disclose the coating of the components forming the trough with a corrosion protection coating.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BFB
June 19, 2007


Bruce F. Bell
Primary Examiner
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